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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,724	01/22/2002	Peter H. Seeberger	MTV-037.01	3517

25181 7590 12/17/2002

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BOSTON, MA 02110

EXAMINER

KRISHNAN, GANAPATHY

ART UNIT	PAPER NUMBER
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1623

DATE MAILED: 12/17/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/054,724

Applicant(s)

SEEBERGER ET AL.

Examiner

Ganapathy Krishnan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 11-13, 16 and 17 is/are rejected.
- 7) ☒ Claim(s) 5, 10, 14, 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7, 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 gives four structures. The structure on the top left is identical to the one on the top right as are the ones on the bottom left and bottom right. Only two structures with distinct chemical cores are seen. Either the structures have to be redrawn to show four different disaccharides or one from each of the identical pairs has to be removed from the claim.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-9, 11-13, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamura (Trends in Glycoscience and Glycotechnology, 2001, 13(69), 65-88), Westman et al (J. Carbohydrate Chemistry, 1995, 14(1), 95-113), Nilsson et al (Carbohydrate Research, 1993, 246, 161-172), Jaurand et al (Bioorganic & Medicinal Chemistry Letters, 1992,

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2(9), 897-900), Ichikawa et al (Carbohydrate Research, 1985, 141(2), 273-282), Kovensky et al (Bioorganic & Medicinal Chemistry, 1999, 7, 1567-1580), and Lei et al (Bioorganic & Medicinal Chemistry, 1998, 6, 1337-1346).

Tamura has disclosed a disaccharide (structure 60, page 71), which has an azido and a trichloroacetimidate group.

Westman et al have disclosed a disaccharide (structure 13, page 99) having an azido and a methoxyl on the anomeric carbon.

These two structures meet the limitations of Claims 1-4.

Nilsson et al have disclosed a trisaccharide (structure 9, page 163) having an azido group on the middle saccharide unit and alkoxy and alkyl substitutions.

Jaurand has disclosed a trisaccharide (structure 15, page 899) having an azido group on the end sugar moieties and a trichloroacetimidate group on the anomeric carbon.

A similar trisaccharide has also been disclosed by Ichikawa et al (see structure 15, page 276).

These three structures meet the limitations of Claims 6-9.

Kovensky et al have disclosed a method of making a trisaccharide see page 1569, scheme 3) which involves the reaction of a disaccharide comprising an activated anomeric carbon (structure 8, scheme 3) with a second monosaccharide (structure 9, scheme 2) comprising a hydroxyl group. The trisaccharide is obtained by forming a linkage between the said anomeric carbon of the first saccharide and the said hydroxyl of the second saccharide. The two saccharide units are also not identical. Kovensky has also taken the process further to make structure 14 (scheme 3, page 1569) using hydrogenolysis (hydrogen; Pd/C) to remove the hydroxy protecting

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groups and finally sulfating the free hydroxyl group using pyridine/sulfur trioxide complex. (steps m and n respectively in scheme 3, page 1569).

A similar method is also disclosed by Lei et al (see page 1338, scheme 1) where structure 25 is combined with structure 24 to yield structure 26. Structure 26 has been converted to structure 30 (see scheme 30, page 1340), which involves hydrogenolysis to remove the protecting groups and sulfation (steps d and e respectively).

These disclosures of Kovensky and Lei meet the limitations of Claims 11, 12, 16 and 17.

Claims 5, 10, 14, 15 are objected to since they are all dependent on base claims which have been rejected.

Claims 18-22 appear to be free of prior art since no prior art of record teaches or fairly suggests a method of preparing an oligosaccharide comprising an alpha-glucosamine glycosidic linkage comprising the step of reacting a uronic acid glucopyranosyl acceptor comprising a hydroxyl at C4 and a cyclic acetal comprising C1 and C2.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathy Krishnan whose telephone number is 703-305-4837. The examiner can normally be reached on 8.30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson can be reached on 703-308-4624. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and 703-305-3014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

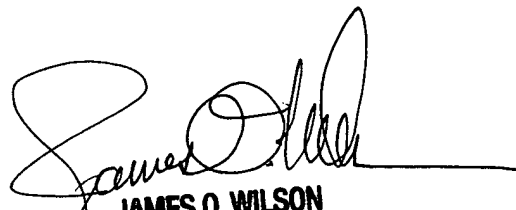
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GK

December 15, 2002



**JAMES O. WILSON**  
**SUPERVISORY PATENT EXAMINER**  
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